

## 8.1 APICULTURE

Practice of keeping bees for honey production is called apiculture.

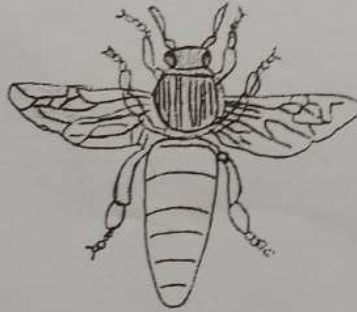
### 8.1.1 Types of honey bees

Following four types of honey bees species are found in Pakistan

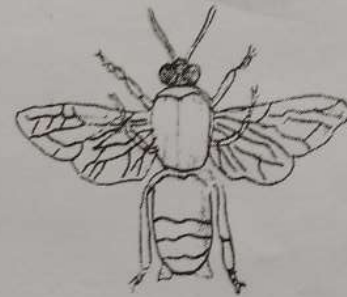
- Apis dorsata* (Apidae; Hymenoptera)  
↗ *Apis florea* (Apidae; Hymenoptera)  
↘ *Apis cerana* (Apidae; Hymenoptera)  
↘ *Apis mellifera* (Apidae; Hymenoptera)  
domesticated.



Worker bee



Queen bee



Drone

#### 1. *Apis dorsata*

Rock or wild bee. Common names is "doomna makhi". They live in colonies in single combs at rock bases or big trees etc. Comb may extends to 5x2 feet and is always in an open place, never in darkness. Very good honey yielder i.e. 80 lbs from a single comb. It is very ferocious. Sting is very painful. When enraged, they follow victim for miles even in water. Extraction of combs can be done by smoking or burning.

#### 2. *Apis florea*

Common names are "little bee" / "choti makhi". Single comb is built in bushes, branches or in houses. Known as stingless but it has sting. These are not economical because yield is only few lbs. Its honey is praised for chemical properties.

### 3. *Apis cerana*

Common name is "hill bee" also called "domestic bee". They live in hives in close covers, crevices of rocks, walls and trees. They build several combs side by side, parallel to each other. In modern hives average yield is 20 lbs. Commonly found in Murree Hills, hilly tracts of Peshawar, Chitral and D. I. Khan.

### 4. *Apis mellifera*

European or Australian bee. Habits like *Apis cerana*. They are less prone to swarming. Good honey yielder and average yield is 10-30 lbs. Prefer to live in concealed environment, so can easily be domesticated.

**8.1.2 Biology of honey bees:** Honey bees are social insects and live in colonies. Colony consists of Queen, Drone bees and worker bees.

#### A. Queen

One queen is present in a colony, with large abdomen and well developed sting which is used to kill other queens before emergence in a colony. Queen may live from 2 to 3 years. She lays 15,000 eggs/day during active season. The fertilized eggs produce workers or queens. Unfertilized eggs produce drones.

Queen leaves colony only for mating, swarming or absconding. Larva, from which queen is to be reared, is placed in a special cell and fed on a richer, more nourishing food called **Royal Jelly**.

#### B. Drones

A number of male drones are always present in a colony. They have no sting and fed by workers. Their function is to mate with virgin queen. Their life is nearly 2 months.

#### C. Workers

Main strength of the colony is its workers, which are 5,000 or more, depending upon the species and colony strength. They are imperfectly developed females, don't lay eggs. They attend to the work for first three weeks, after emergence work indoors as nurses, hive cleaners, wax makers, honey makers, guards and stores of pollen and nectar. Afterwards outdoor work of bringing nectar, pollen and water are also done by workers. The life of workers is nearly 6 weeks. In winter, they may live up to 6 months. Bees can produce 1 lb wax foundation by consuming 8-12 lbs of honey. To avoid this honey consumption, we supply artificial comb foundations in frames and bees start work on

these frames.

**Cycle of the year:** Bees remain active throughout the year. During winter, bees neither do much work nor rear any brood; they sit together in the hive and eat honey to create heat. In spring, queen starts laying eggs and brood rearing begins, colony becomes strong during mid March to mid April. Nest is crowded and these bees prepare for swarming. At this time queen cells are built along the bottom and sides of combs. When the new queen is ready to emerge, the old queen accompanied by a large number of workers, who have filled their stomachs with honey, leaves the colony in a warm day to start a new colony. They settle on a nearby tree, bush or some other suitable object. Scouts search a new place and the whole swarm settles there within 2-48 hours of leaving the parent colony.

In the parent colony two things may happen:

- a) The first queen emerging after primary swarming may kill the queens in other cells and establishes herself as queen mother.
- b) She may fly away in a swarm (3-4 swarms may follow) until strength of colony is considerably depleted; the queen emerging last holding the parent colony.

After the swarming fever is over, the bees in the parent colony settle down to normal work.